CONFERENCE ON DISARMAMENT

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REPORT OF THE AD HOC COMMITTEE ON A NUCLEAR TEST BAN

I. INTRODUCTION

1. At its 637th plenary meeting on 21 January 1993, the Conference on Disarmament agreed to re-establish an ad hoc committee under item 1 of its agenda entitled "Nuclear Test Ban" (CD/1180), with the mandate resulting from the 1992 consultations conducted by the special coordinator on this item, contained in CD/1179, as follows:

> "In the exercise of its responsibilities as the multilateral disarmament negotiating forum in accordance with paragraph 120 of the Final Document, the Conference on Disarmament decides to re-establish an Ad Hoc Committee under item 1 of its agenda entitled 'Nuclear Test Ban'.
>
> The Conference requests the Ad Hoc Committee to continue, as a step towards achieving a comprehensive nuclear test-ban treaty, substantive work on specific and interrelated test-ban issues, including structure and scope as well as verification and compliance.
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> Pursuant to its mandate, the Ad Hoc Committee will take into account all existing proposals and future initiatives. In addition, it will draw on the knowledge and experience that have been accumulated over the years in the consideration of a comprehensive test ban in the successive multilateral negotiating bodies and the trilateral negotiations.
>
> The Conference also requests the Ad Hoc Committee to continue the examination of the institutional and administrative arrangements necessary for establishing, testing and operating an international seismic monitoring network as part of an effective verification system of a nuclear test-ban treaty. The Ad Hoc Committee will also take into account the work of the Ad Hoc Group of Scientific Experts to Consider International Cooperative Measures to Detect and Identify Seismic Events.
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> The Ad Hoc Committee will report to the Conference on Disarmament on the progress of its work before the conclusion of the 1993 session. This report should include, inter alia, the Committee's recommendations on how the objectives of the Ad Hoc Committee on agenda item 1, 'Nuclear Test Ban', should be carried forward most effectively in 1994."

2. At its 659th plenary meeting on 10 August 1993, the Conference adopted the following decision on agenda item 1 (CD/1212):

"The Conference on Disarmament,

Taking note of initiatives regarding the negotiation of a comprehensive nuclear test ban treaty (CTB),

Convinced that, to contribute effectively to the prevention of the proliferation of nuclear weapons in all its aspects, to the process of nuclear disarmament and therefore to the enhancement of international peace and security, a CTB should be universal and internationally and effectively verifiable,

Convinced further that, in order to achieve this goal, it is important that a CTB be multilaterally negotiated,

Stressing that, as the sole multilateral disarmament negotiating forum of the international community, it is the appropriate forum for negotiating a CTB,

Decides to give its Ad Hoc Committee on a Nuclear Test Ban a mandate to negotiate a CTB;

Requests the Chairman of its Ad Hoc Committee on a Nuclear Test Ban to make the necessary arrangements to conduct consultations during the period between 3 September 1993 and 17 January 1994 on the specific mandate for, and the organization of, the negotiation."

3. At the same meeting, the Chairman of the Ad Hoc Committee announced that he would proceed without delay to make the necessary arrangements for the consultations he was requested to conduct by the Conference.

II. ORGANIZATION OF WORK AND DOCUMENTATION

4. At the 639th plenary meeting on 28 January 1993, the Conference on Disarmament appointed Ambassador Yoshitomo Tanaka of Japan as Chairman of the Ad Hoc Committee. Mr. Michael Cassandra of the United Nations Office for Disarmament Affairs served as Secretary.

5. As it had announced in May 1992, the delegation of France participated for the first time in the work of the Ad Hoc Committee. France's decision to participate was widely welcomed in the Ad Hoc Committee.

6. In accordance with the decision of the Conference adopted at its 603rd plenary meeting on 22 August 1991, the Ad Hoc Committee was open to all the non-member States invited by the Conference to participate in its work.

7. The Ad Hoc Committee held 19 meetings from 18 February to 24 August 1993. In addition, the Chairman conducted a number of informal consultations with delegations.

8. The following official documents dealing with a nuclear test ban were presented to the Conference:

- CD/1179, dated 22 January 1993, entitled "Mandate for an Ad Hoc Committee under agenda item 1".

- CD/1199, dated 26 May 1993, submitted by the delegation of Canada, enclosing a booklet entitled "Non-Seismic Technologies in support of a Nuclear Test Ban".

- CD/1200/Rev.1, dated 11 June 1993, submitted by the Group of 21, entitled "Group of 21: draft statement" (first submitted as a draft decision on 2 June 1993).

- CD/1201, dated 3 June 1993, submitted by the delegation of Canada, enclosing a booklet entitled "Constraining Proliferation: the Contribution of Verification Synergies"

- CD/1202, dated 3 June 1993, submitted by the delegation of Sweden, entitled "Text of a Draft Comprehensive Test-Ban Treaty".

- CD/1204, dated 17 June 1993, submitted by the delegation of Mexico, transmitting copy of a letter entitled "Letter on Nuclear Testing sent to the President of the United States on 14 June 1993 by the Members of the Pugwash Council attending the 43rd Pugwash Conference in Hasseludden, Sweden".

- CD/1205, dated 20 July 1993, submitted by the delegation of the United States of America, entitled "Text of President Clinton's radio address of 2 July 1993 regarding his decision on U.S. nuclear testing policy".

- CD/1208, dated 27 July 1993, submitted by the delegation of Venezuela, entitled "Text of a communiqué issued by the Government of Venezuela in connection with the extension of the existing moratorium on nuclear testing".

- CD/1209, dated 3 August 1993, submitted by the delegations of Australia, Mexico and Nigeria, entitled "Draft decision".

- CD/1210, dated 4 August 1993, submitted by the delegation of Indonesia, entitled "Message from Mr. Ali Alatas, Minister for Foreign Affairs of Indonesia and President of the Amendment Conference of States Parties to the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water on the occasion of the 30th anniversary of the signing of the Treaty".

- CD/1212, dated 10 August 1993, entitled "Decision on agenda item 1 'Nuclear Test Ban' adopted by the Conference on Disarmament at its 659th plenary meeting on 10 August 1993".

In addition, the following working papers were presented to the Ad Hoc Committee:

- CD/NTB/WP.15, dated 26 February 1993, submitted by the delegation of Australia, entitled "A Nuclear Test Ban Treaty: Some reflections on verification".

- CD/NTB/WP.17, dated 28 May 1993, submitted by the delegation of France, entitled "General introduction to non-seismic detection techniques".

- CD/NTB/WP.18 (also issued as CD/1201).

- CD/NTB/WP.19 (also issued as CD/1202).

- CD/NTB/WP.20, dated 11 June 1993, submitted by the delegation of Japan, entitled " NTB verification system by satellite"

- CD/NTB/WP.21, dated 11 June 1993, submitted by the delegation of the Russian Federation, entitled "Non-seismic methods of detecting nuclear explosions in the interests of monitoring a comprehensive nuclear test ban".

- CD/NTB/WP.22 and Corr.1, dated 25 June 1993, submitted by the delegation of New Zealand, entitled "Verification of a comprehensive nuclear test ban by means of non-seismic techniques: hydroacoustic methods"

- CD/NTB/WP.23, dated 25 June 1993, submitted by the delegation of France, entitled "Non-seismic detection techniques: survey of the state of the art and problems of synergy".

- CD/NTB/WP.24 (also issued as CD/1205).

- CD/NTB/WP.25, dated 5 August 1993, submitted by the delegation of Norway, entitled "Non-seismic detection of nuclear detonations".

- CD/NTB/WP.26, dated 24 August 1993, submitted by the delegation of Australia, entitled "Hydroacoustics and CTBT verification".

- CD/NTB/WP.27, dated 24 August 1993, submitted by the delegation of Australia, entitled "A CTBT and satellite and overhead verification technology".

- CD/NTB/WP.28, dated 24 August 1993, submitted by the delegation of Australia, entitled "On-site verification measures, transparency and information-sharing".

- CD/NTB/WP.29, dated 24 August 1993, submitted by the delegation of Australia, entitled "Review of the discussion of non-seismic verification methods".

- CD/NTB/WP.30, dated 24 August 1993, submitted by the delegation of Australia, entitled "Some reflections on existing proposals".

- CD/NTB/WP.31, dated 24 August 1993, submitted by the delegation of the United Kingdom of Great Britain and Northern Ireland, entitled "On-site inspection for nuclear test ban verification".

CD/NTB/WP.32, dated 24 August 1993, submitted by the delegation of The Netherlands, entitled "Measuring radio-activity in the atmosphere and hydroacoustics: non-seismological monitoring techniques as part of the comprehensive verification system for a nuclear test ban treaty".

The following conference room papers were before the Ad Hoc Committee:

- CD/NTB/CRP.16, dated 18 February 1993, entitled "Indicative Schedule of Meetings - First part (19 January - 26 March 1993)".

- CD/NTB/CRP.16/Add.1, dated 25 March 1993, entitled "Indicative Schedule of Meetings - Second part (10 May - 25 June 1993)".

- CD/NTB/CRP.16/Add.2, dated 24 June 1993, entitled "Indicative Schedule of Meetings - Third part (26 July - 3 September 1993)".

- CD/NTB/CRP.17/Rev.1, dated 23 August 1993, entitled "Draft Report of the Ad Hoc Committee on a Nuclear Test Ban".

Furthermore, upon the request of the Ad Hoc Committee, the Secretariat updated a list of documents relating to a Nuclear Test Ban, submitted to the Conference of the Eighteen Nation Committee on Disarmament, the Conference of the Committee on Disarmament, the Committee on Disarmament, and the Conference on Disarmament (CD/NTB/INF.1/Add.2 of 16 February 1993).

III. SUMMARY OF DEVELOPMENTS DURING THE 1993 SESSION

9. From the outset of the 1993 session, the members of the Ad Hoc Committee were keenly aware that its deliberations throughout the session would be taking place in the context of a rapidly evolving international situation, particularly in the area of nuclear disarmament, and that its programme of work would therefore need to be adaptable to any possible developments in the field of nuclear testing. Moreover, the Ad Hoc Committee began its work in an atmosphere of heightened anticipation for a new momentum at the multilateral level towards a comprehensive test ban treaty, especially in the light of the moratorium on nuclear testing declared by the Russian Federation in October 1991, by France in April 1992, and by the United States in October 1992, and in the light of the fact that the United Kingdom had not conducted a test since November 1991, nor had China since September 1992. Many delegations from different groups made appeals, both in the Ad Hoc Committee and in the plenary meetings of the Conference, for the nuclear-weapon States to continue their declared moratoria beyond July 1993, and for all nuclear-weapon States which had not done so to join the moratoria.

10. The question of a CTBT received a great deal of attention in plenary meetings of the Conference throughout the annual session. The many views expressed in these meetings are contained in the following official records of the Conference: (CD/PV.636, 638-646, 648-652, 654-662).

11. The delegations of the Group of 21, Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), considered that it is urgent to conclude a comprehensive test ban treaty. They stressed, furthermore, that the conclusion of such a treaty would have a decisive influence on the outcome of the 1995 NPT Conference.

12. Other delegations of States Parties to the NPT, while recognizing the importance of negotiations of a CTBT, thought it essential to avoid linkage with the outcome of the 1995 NPT Conference, since this could put at risk the future of the nuclear non-proliferation regime, the maintenance of which would remain an essential element of international security. They underlined, furthermore, that the aim of a CTBT which genuinely contributed to non-proliferation would not be furthered by the imposition of deadlines.

13. Against this background, the Ad Hoc Committee adopted on 18 February 1993 a schedule for its first part only (CD/NTB/CRP.16). It began its work with general debate followed by discussions on verification and compliance and structure and scope as requested by the Conference in its mandate cited above.

14. During the course of general debate, upon a special request of the Ad Hoc Committee's Chairman, the nuclear-weapon States outlined their policies in respect of nuclear testing and a comprehensive nuclear test ban. The updates received from the nuclear-weapon States were highly appreciated by the other members of the Ad Hoc Committee. (The policies of the nuclear-weapon States were also elucidated at the following plenary meetings of the Conference: China - 645th plenary on 4 March and 650th plenary on 25 May; France - 657th plenary on 29 July; the Russian Federation - 640th plenary on 2 February and 658th plenary on 5 August; the United Kingdom - 658th plenary on 5 August and the United States - 657th plenary on 29 July). Upon the invitation of the Chairman, the Chairman of the Ad Hoc Group of Scientific Experts briefed the Ad Hoc Committee on the work of the Group during its 35th session when the Committee addressed the questions of verification and compliance.

15. There was a widely held view that, while seismic monitoring should form the core of future CTBT verification, monitoring by seismic means alone might not give confidence in compliance with a test ban. The Ad Hoc Committee therefore found that there was a need to begin an exploratory exercise on verification technologies, other than seismic, that could be useful for the verification system for a future CTBT. The Ad Hoc Committee, upon different proposals put forward by Australia and Germany on the subject, decided to devote the entirety of the second part of the session to an exploration of such non-seismic technologies (CD/NTB/CRP.16/Add.1). In order to enhance the technical level of the discussions, it was requested that delegations in a position to do so be assisted by technical experts. Twenty expert presentations were delivered over the course of the second and third parts of the session in this unprecedented substantive consideration of non-seismic verification techniques, covering a wide range of technologies.

16. The third part of the session began after important announcements had been made by the United States, France and the Russian Federation, on the issue of moratoria and on their policies on a CTBT, which were widely welcomed. These announcements are reflected in plenary statements made on 29 July and 5 August (see CD/PV.657 and 658). The discussions in the Ad Hoc Committee during the third part of the session were dominated by the process in the Conference which led to the 10 August decision to give the Ad Hoc Committee a negotiating mandate and for the Chairman of the Committee to hold consultations on how to organize its future work.

17. In parallel to those discussions, the Ad Hoc Committee continued to pursue its agreed agenda for the third part of the session (CD/NTB/CRP.16/Add.2). It began a discussion to consider the possible interrelationship of seismic and non-seismic verification technologies. As it was considered that the results of these discussions might have far-reaching consequences, some delegations believed it was premature to have in-depth talks on them. A suggestion was made to consider, for each of the possible environments in which a nuclear explosion could take place, holding a two-to-three day meeting of experts and delegates with a view to considering the entire range of questions involved in verifying a particular environment.

18. Also under this item, the Ad Hoc Committee heard a statement by the Chairman of the Ad Hoc Group of Scientific Experts, which brought it up to date on the work of the Ad Hoc Group at its 36th session, focusing in particular on the costs of a future seismic network as they relate to system capability.

19. The Ad Hoc Committee also took up, in accordance with the mandate given to it at the start of the 1993 annual session, a consideration of existing proposals. Under this item, several delegations commented on aspects of the draft for a CTBT put forward by Sweden on 3 June 1993 (CD/1202-CD/NTB/WP.19). A summary of the discussion on this item is found below.

Structure and scope

20. With regard to the issue of the scope of a future agreement, all delegations stressed that it was essential that a future CTBT be universally applicable, to non-nuclear-weapon States as well as to nuclear-weapon States, and effectively and internationally verifiable. Only in this way could the agreement make an effective contribution to the prevention of proliferation of nuclear weapons in all its aspects.

21. In its 1991 report to the Conference, the Ad Hoc Committee dealt with the issue of whether to include in the prohibition nuclear tests for peaceful purposes (PNES). Sweden revised its proposed draft for a CTBT (see CD/1202), to include the obligation of a State Party to prohibit "any nuclear-weapon test explosion, or any other nuclear explosion at any place under its jurisdiction or control". Several delegations welcomed Sweden's inclusion of PNES within the scope of the prohibition of nuclear explosions.

22. With regard to the question of a threshold nuclear test ban, the United States' delegation, for its part, clarified that its President had rejected the option of a 1-kiloton threshold agreement and would be seeking a comprehensive, not a limited or threshold, test ban.

Verification and compliance

23. There was general recognition that in order to ensure compliance with a future CTBT, an effective, internationally applicable verification system would be required. The Committee did not consider the scope of or the requirements for a verification regime. A number of delegations noted that, depending on future decisions on the scope of the prohibition and on requirements of the verification regime, much work remained to be done in this area. At the same time, a number of delegations registered their view that adequate verification technologies were already available. A view was also expressed that remaining difficulties might be more political than technical in nature. The question was raised as to whether the verification regime should cover possible nuclear explosions and preparatory activity in all environments. Some of the issues that preoccupied delegations during the session were those relating to:

- the substantial role that a global seismic monitoring network would have, especially in the underground test environment;

- the possible use of additional non-seismic verification technologies (see below) for the detection of nuclear tests in various environments including in relation to the question of evasion; and their possible use for the detection of pre-testing preparations;

- the question of costs of a future verification system, including in relation to its capabilities;

- the question of an implementing agency, its powers and functions and costs;

- the intimate inter-relationship between verification techniques applicable and the scope of Convention obligations; and,

- the issue of a possible mix of national and international means of verification, including in terms of cost effectiveness.

In addition to the issues listed above, India stressed that the verification system to be developed must be non-discriminatory in character in the sense of providing equal rights and obligations to the States Parties to the proposed treaty including equal access. Some other delegations expressed a similar view.

24. The work of the Conference's Ad Hoc Group of Scientific Experts, which is currently developing plans to test its revised concepts for an international seismic monitoring network in 1995, was generally appreciated. Various views were expressed on whether it was necessary or desirable to review the relationship of the Ad Hoc Committee to the Ad Hoc Group, including to take account of future negotiation requirements flowing from decisions to be taken by the Conference.

25. The issue of whether an existing organization or a newly-created institution would be the implementing agency for the future agreement continued to evoke keen interest among delegations. Specifically on the table was the proposal contained in the Swedish draft CTBT (CD/1202) that the International Atomic Energy Agency (IAEA) be entrusted with verification of compliance with the treaty. Questions on the role that IAEA might play were raised during the discussions. Bearing in mind that it was still very early to identify a particular implementing agency for a future ban, the Ad Hoc Committee decided to recommend to the Conference that a representative of the IAEA be invited to provide relevant information to it.

Non-seismic verification technologies

26. During the second and third parts of the session, a variety of non-seismic technologies for verifying a future CTBT was examined for the first time in the framework of the Ad Hoc Committee. Presentations on specific technologies were made either by experts themselves, as part of their national delegations, or by members of delegations, based on consultations with national experts. The Ad Hoc Committee used this exercise to identify technologies which might be useful to a verification system, and to gather information from experts on the advantages and disadvantages of such non-seismic technologies. The Ad Hoc Committee did not draw conclusions on the technologies presented. Nevertheless, these discussions provided the Committee with a basis for ongoing work, including on the possible interrelationship of seismic and non-seismic verification technologies.

27. The Ad Hoc Committee heard an overview of the subject by the delegations of Sweden and France which sought to place the discussion of individual non-seismic verification technologies in a broader context.

28. Two possible uses of non-seismic verification techniques were suggested. Such techniques could be supplementary to a global seismic monitoring network, that is, collecting information in parallel with a seismic network, with several networks simultaneously transmitting information to competent international or national authorities. They could also be viewed as complementary information-gathering nets, once an event that needed clarification was detected by a seismic or other sort of network and a focused verification was needed. The following non-seismic verification technologies and measures were identified (see also the list of documents above containing references to some of the presentations made):

- Hydroacoustic monitoring system:
  presented by Australia, Germany, the Netherlands, New Zealand and Norway;

- Surveillance of atmospheric radioactivity:
  presented by Canada, Germany, Italy, the Netherlands, the Russian Federation and Sweden;

- Surveillance by satellite and aerial monitoring:
  presented by Australia, Canada, Japan and the Russian Federation;

- Electromagnetic pulse measurement:
  presented by Norway and the Russian Federation;

- Infrasound measurement of the atmosphere:
  presented by the Russian Federation;

- On-site observations and inspections:
  presented by Italy, the Russian Federation and the United Kingdom;

- Chemical detection techniques:
  presented by Canada;

- Static and time variant three-dimensional resistivity measurements:
  presented by Canada

- Transparency measures and nationally-derived information-sharing arrangements (CBMs), including exchange of information on large-scale conventional explosions, invitations to outside observers, and relevant geological information exchange:
  presented by Australia.

29. In addition, Australia and France presented, in their national capacities, summaries of the discussions held. Australia put forward several procedural proposals for the way in which the Ad Hoc Committee could deepen its discussions on the technologies that might be included in an overall verification system for a CTBT. It suggested: (a) technical hearings in the Ad Hoc Committee; (b) appointments of Friends of the Chair to organize technology-specific programmes; and (c) adding new work strands to the seismic work being done by the Ad Hoc Group of Scientific Experts. France, in its résumé, concluded that further work needed to be accomplished on how to establish synergy among the many techniques discussed.

30. It was widely considered that this examination of non-seismic verification technologies was a useful first step towards a more focused examination of their applicability to an eventual complete verification regime for a CTBT. The interaction of these technologies with each other and with a seismic network would need further consideration. Important work needed to be done also on the costs and cost-effectiveness of various technologies, on the related question of the institutional arrangements for verification and on the issue of the use of nationally acquired information in an international verification system.

Consideration of existing proposals

31. Under this item, the Ad Hoc Committee heard preliminary comments and reactions from several delegations to the Swedish proposed draft CTBT (CD/1202). The Swedish delegation announced that it would be submitting annexed protocols to the draft, detailing the verification arrangements it envisaged. The submission of the draft CTBT was welcomed by several delegations as a stimulus to a further consideration of many issues raised in the draft. Comments on the draft focused mainly on the inclusion of PNES in the prohibition of nuclear tests (see above under "Structure and scope"); on the proposal to entrust the IAEA with verification of compliance with the Treaty (see above under "Verification and compliance"); on the suggested definition of a nuclear explosion; also on the need for clarification of what constituted the obligation not to "cause" or "assist" a nuclear test explosion.

Conclusions and recommendations

32. It was widely recognized that the adoption of a decision to give the Ad Hoc Committee a negotiating mandate was a major turning point for multilateral work towards a CTBT. The Ad Hoc Committee benefited from a constructive and positive atmosphere throughout the session on the issues under its mandate. The deliberations of the Ad Hoc Committee this session marked a qualitative step forward on the long road towards a CTBT. In particular, the unprecedented expert presentations and subsequent discussions on non-seismic verification technologies had contributed considerably to the work on verification issues.

33. The Ad Hoc Committee welcomed the fact that, in accordance with the request made by the Conference in its decision (CD/1212) of 10 August 1993, the Chairman would conduct consultations during the period between 3 September 1993 and 17 January 1994 on the specific mandate for, and the organization of, the negotiation of a CTBT.

34. The Ad Hoc Committee recommends that it be reestablished at the outset of the 1994 session, taking into consideration the results of the consultations of the Chairman during the intersessional period.